

**CLAIMS**

We claim:

1. A suspension for coupling a steer axle assembly to a vehicle frame having first and second longitudinal frame rails, comprising:

5 a first leaf spring coupled to said vehicle frame at first and second ends and to an axle beam of said steer axle assembly intermediate said first and second ends;

a first arm pivotally coupled to said axle beam at a first end and to said vehicle frame at a second end proximate one of said first and second ends of said first leaf spring;

10 a second leaf spring coupled to said vehicle frame at first and second ends and to said axle beam of said steer axle assembly intermediate said first and second ends, said second leaf spring disposed on an opposite side of said vehicle frame from said first leaf spring; and,

15 a second arm pivotally coupled to said axle beam at a first end and to said vehicle frame at a second end proximate one of said first and second ends of said second leaf spring

2. The suspension of claim 1, further comprising a torsion bar extending between and coupled to said first and second arms.

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3. The suspension of claim 2 wherein said torsion bar is tubular.

25 4. The suspension of claim 1, further comprising first and second mounting brackets coupled to said axle beam, said first leaf spring disposed between said first mounting bracket and said axle beam and said second leaf spring disposed between said second mounting bracket and said axle beam.

30 5. The suspension of claim 4, further comprising first and second springs disposed between said axle beam and said first and second longitudinal frame rails, said first and second springs supported on said first and second mounting brackets, respectively.

6. The suspension of claim 1, further comprising first and second springs disposed between said axle beam and said first and second longitudinal frame rails.

7. The suspension of claim 1 wherein said first and second ends of said first  
5 and second arms are disposed below said first and second leaf springs, respectively.

8. The suspension of claim 1 wherein said first and second ends of said first and second arms are disposed above said first and second leaf springs, respectively.

10 9. The suspension of claim 1, further comprising:

a first shackle coupled to said vehicle frame, one of said first and second ends of said first leaf spring pivotally coupled to said first shackle and said second end of said first arm pivotally coupled to said first shackle; and,

15 a second shackle coupled to said vehicle frame, one of said first and second ends of said second leaf spring pivotally coupled to said second shackle and said second end of said second arm pivotally coupled to said second shackle.

10. A suspension for coupling a steer axle assembly to a vehicle frame having first and second longitudinal frame rails, comprising:

20 a first leaf spring coupled to said vehicle frame at a forward end and at a rearward end and to an axle beam of said steer axle assembly intermediate said forward and rearward ends;

25 a first arm pivotally coupled to said axle beam at a rearward end and to said vehicle frame at a forward end proximate said forward end of said first leaf spring, said forward and rearward ends of said first arm disposed below said first leaf spring;

a second leaf spring coupled to said vehicle frame at a forward end at a rearward end and to said axle beam of said steer axle assembly intermediate said forward and rearward ends, said second leaf spring disposed on an opposite side of said vehicle frame from said first leaf spring; and,

30 a second arm pivotally coupled to said axle beam at a rearward end and to said vehicle frame at a forward end proximate said forward end of said second leaf spring,

said forward and rearward ends of said second arm disposed below said second leaf spring

11. The suspension of claim 10, further comprising a torsion bar extending  
5 between and coupled to said first and second arms.

12. The suspension of claim 11 wherein said first arm defines an aperture  
configured to receive said torsion bar.

10 13. The suspension of claim 11 wherein said torsion bar is tubular.

14. The suspension of claim 10 wherein said forward end of said first arm is  
vertically higher than said rearward end of said first arm.

15 15. The suspension of claim 10, further comprising a first mounting bracket  
coupled to said axle beam, said first leaf spring disposed between said first mounting  
bracket and said axle beam.

16. The suspension of claim 15, further comprising a first shock absorber, said  
20 first shock absorber coupled at a first end to said first mounting bracket and at a second  
end to said first longitudinal frame rail.

17. The suspension of claim 10, further comprising first and second springs  
disposed between said axle beam and said first and second longitudinal frame rails.

25 18. A suspension for coupling a steer axle assembly to a vehicle frame having  
first and second longitudinal frame rails, comprising:  
a first leaf spring coupled to said vehicle frame at a forward end and at a  
rearward end and to an axle beam of said steer axle assembly intermediate said forward  
30 and rearward ends;

a first arm pivotally coupled to said axle beam at a forward end and to said vehicle frame at a rearward end proximate said rearward end of said first leaf spring, said forward and rearward ends of said first arm disposed above said first leaf spring;

5 a second leaf spring coupled to said vehicle frame at a forward end at a rearward end and to said axle beam of said steer axle assembly intermediate said forward and rearward ends, said second leaf spring disposed on an opposite side of said vehicle frame from said first leaf spring; and,

10 a second arm pivotally coupled to said axle beam at a forward end and to said vehicle frame at a rearward end proximate said rearward end of said second leaf spring, said forward and rearward ends of said second arm disposed above said second leaf spring.

15 19. The suspension of claim 18, further comprising a torsion bar extending between and coupled to said first and second arms.

20 20. The suspension of claim 19 wherein said first arm defines an aperture configured to receive said torsion bar.

21. The suspension of claim 19 wherein said torsion bar is tubular.

20 22. The suspension of claim 19 wherein said first arm includes a first member disposed above said first leaf spring and a second member having first and second ends rigidly coupled to said first member at locations above said first leaf spring and defining an aperture intermediate said first and second ends and below said first leaf spring, said aperture configured to receive said torsion bar.

25 23. The suspension of claim 18, further comprising a first mounting bracket coupled to said axle beam, said first leaf spring disposed between said first mounting bracket and said axle beam.

30 24. The suspension of claim 23 wherein said first arm is pivotally coupled to said first mounting bracket.

25. The suspension of claim 18, further comprising a first shock absorber, said first shock absorber coupled at a first end to said first arm and at a second end to said first longitudinal frame rail.

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26. The suspension of claim 18, further comprising first and second springs disposed between said axle beam and said first and second longitudinal frame rails.

27. The suspension of claim 18, further comprising:

10 a first shackle coupled to said vehicle frame, one of said first and second ends of said first leaf spring pivotally coupled to said first shackle and said second end of said first arm pivotally coupled to said first shackle; and,

15 a second shackle coupled to said vehicle frame, one of said first and second ends of said second leaf spring pivotally coupled to said second shackle and said second end of said second arm pivotally coupled to said second shackle.